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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/268,948	03/16/1999	MIGAKU TAKAHASHI		9187

22855 7590 06/27/2002

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3510-A STELLHORN ROAD  
FORT WAYNE, IN 46815-4631

EXAMINER
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CANTELMO, GREGG

ART UNIT	PAPER NUMBER
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1745

22

DATE MAILED: 06/27/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

MF=22

**Office Action Summary**

Application No.

09/268,948

Applicant(s)

TAKAHASHI

Examiner

Gregg Cantelmo

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 07 June 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,2 and 10-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2 and 10-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                             | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____                                    |

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## **DETAILED ACTION**

### ***Request for Continued Examination***

1. The RCE filed June 7, 2002 has been reviewed and entered. An action on the merits is as follows.

### ***Response to Amendment***

2. In response to the request for reconsideration received on June 7, 2002:
  - a. The 102 rejection drawn to Takahashi stands;
  - b. The 103 rejection drawn to Kano are withdrawn.

### ***Specification***

3. The abstract of the disclosure is objected to because it is not a single paragraph. Correction is required. See MPEP § 608.01(b).

### ***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

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(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

5. Claims 1-2 and 10-13 are rejected under 35 U.S.C. 102(a) as being anticipated by Takahashi 1993, of record and for the reasons of record.

Therein Takahashi 1993 discloses forming Fe-N onto a MgO substrate films using a facing (otherwise understood as opposing) target type DC sputtering apparatus (page 3040, second column and page 3041 first column). The process is performed under identical plasma conditions  $T_e$  is within a range of about 0.2 eV and 0.6 eV and  $N_e$  is about  $10^9 \text{ cm}^{-3}$ . The result was an Fe-N sputtered film wherein only diffracted line of (002) from  $\alpha'$  is observed (page 3041, second column). Figs. 1 and 4 show sputtering in a nitrogen flow rate of 25%. Since the opposed DC sputtering is performed under the same plasma conditions and was performed in a nitrogen flow rate of 25% the film formed will inherently have the same properties, including permitting diffraction rays from a  $\gamma'$  phase to be observed. The structure of the film will be an  $\alpha''\text{-Fe}_{16}\text{N}_2$  single phase (page 3041, column 1 as applied to instant claims 1 and 10-11).

The method of forming the film is not germane to the issue of patentability of the film itself. Therefore the limitation of alternating DC sputtering has not been given patentable weight. Since the opposed DC sputtering is performed under the same plasma conditions the film formed will inherently have the same properties, including coercive force (as applied to instant claim 2).

The iron nitride film is formed on an iron underlayer on the substrate (page 3041, first column, paragraph beginning with "[prior to the fabrication]", as applied to claims 12 and 13).

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*Response to Arguments*

6. Applicant's arguments filed June 7, 2002 have been fully considered but they are not persuasive. In particular:

Applicant argues that Takahashi does not describe or show the iron nitride formed using a nitrogen flow rate of 25% permitting diffraction rays from a  $\gamma'$  phase to be observed. The examiner respectfully disagrees.

Takahashi sputter-deposits iron nitride using a nitrogen flow rate of 25% (Figs. 2 and 4). The process conditions for sputtering the iron nitride in the instant application and Takahashi 1993 reference are identical. Therefore it is expected that upon using the nitrogen flow rates of 25% shown in Figs. 2 and 4 under the same process conditions, that the prior art iron nitride film of Takahashi will inherently permit diffraction rays from a  $\gamma'$  phase to be observed.

Applicant argues that Takahashi does not describe or show a coercive force of the iron nitride film being 1.0 Gauss. The examiner respectfully disagrees.

The process conditions for sputtering the iron nitride in the instant application and Takahashi 1993 reference are identical. Therefore it is expected that the prior art iron nitride film of Takahashi will inherently have a coercive force of the iron nitride film being 1.0 Gauss.

In relying upon the theory of inherency, the examiner has provided a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art. Ex parte Levy, 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Inter. 1990).

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“[T]he PTO can require an applicant to prove that the prior art products do not necessarily or inherently possess the characteristics of his [or her] claimed product. Whether the rejection is based on inherency’ under 35 U.S.C. 102, on prima facie obviousness’ under 35 U.S.C. 103, jointly or alternatively, the burden of proof is the same...[footnote omitted].” The burden of proof is similar to that required with respect to product-by-process claims. In re Fitzgerald, 619 F.2d 67, 70, 205 USPQ 594, 596 (CCPA 1980) (quoting In re Best, 562 F.2d 1252, 1255, 195 USPQ 430, 433-34 (CCPA 1977)).

Where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a prima facie case of either anticipation or obviousness has been established. In re Best, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977).

### *Conclusion*

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gregg Cantelmo whose telephone number is (703) 305-0635. The examiner can normally be reached on Monday through Thursday from 8:00 a.m. to 5:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Pat Ryan, can be reached on (703) 308-2383.

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FAX communications should be sent to the appropriate FAX number: (703) 872-9311 for After Final Responses only; (703) 872-9310 for all other responses. FAXES received after 4 p.m. will not be processed until the following business day.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

gc

June 17, 2002

  
Patrick Ryan  
Supervisory Patent Examiner  
Technology Center 1700